Abstract

Brassinosteriods are a kind of plant hormones, which are ubiquitously distributed throughout the plant kingdom and are functional in cell elongation and cell division at extremely low concentrations. However, the most important synthetic enzyme proteins and nucleic acids encoding the proteins regulating the final step of brassinosteroid biosynthesis have not been known.

The inventors searched homological nucleotide sequences to ROT3, which the inventors had previously discovered, and found a nucleotide sequence that exhibits 51% identity to ROT3 gene. Examining the sequence, the inventors discovered that the sequence is a novel gene (CYP90D1, SEQ ID NO: 1), which encodes a factor regulating the final step of brassinosteroid biosynthesis, physiologically functional in regulating the size of plant. Furthermore, the inventors discovered that the CYP90D1 gene regulates the final step of the brassinosteroid biosynthesis in combination with ROT3 (=CYP90C1) gene, then accomplished the present invention.